

PTO/SB/21 (08-03)

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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCETRANSMITTAL
FORM

(to be used for all correspondence after initial filing)

| | | | |
|--|----------------------|---------------------------|-------------|
| | Application Number | 10/614,335 | |
| | Filing Date | July 7, 2003 | |
| | First Named Inventor | James David Keeler et al. | |
| | Art Unit | 2121 | |
| | Examiner Name | George B. Davis | |
| Total Number of Pages in This Submission | | Attorney Docket Number | PAVI-26,470 |

ENCLOSURES (Check all that apply)

| | | |
|--|---|---|
| <input checked="" type="checkbox"/> Fee Transmittal Form | <input type="checkbox"/> Drawing(s) | <input type="checkbox"/> After Allowance communication to Technology Center (TC) |
| <input checked="" type="checkbox"/> Fee Attached | <input type="checkbox"/> Licensing-related Papers | <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences |
| <input type="checkbox"/> Amendment/Reply | <input type="checkbox"/> Petition | <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) |
| <input type="checkbox"/> After Final | <input type="checkbox"/> Petition to Convert to a Provisional Application | <input type="checkbox"/> Proprietary Information |
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| <input checked="" type="checkbox"/> Information Disclosure Statement | <input type="checkbox"/> Request for Refund | |
| <input type="checkbox"/> Certified Copy of Priority Document(s) | <input type="checkbox"/> CD, Number of CD(s) _____ | |
| <input type="checkbox"/> Response to Missing Parts/ Incomplete Application | | |
| <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53 | | |

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

| | |
|-------------------------|---|
| Firm or Individual name | HOWISON & ARNOTT, L.L.P. Gregory M. Howison, Reg. No. 30,646 |
| Signature | |
| Date | 1/28/05 |

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|-----------------------|--------------------|
| Typed or printed name | Gregory M. Howison |
| Signature | |
| | Date 1/28/05 |

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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FEES TRANSMITTAL for FY 2005

Effective 10/01/2004. Patent fees are subject to annual revision.

 Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$ 180.00)

Complete if Known

| | |
|----------------------|-----------------|
| Application Number | 10/614,335 |
| Filing Date | July 7, 2003 |
| First Named Inventor | Keeler et al. |
| Examiner Name | George B. Davis |
| Art Unit | 2121 |
| Attorney Docket No. | PAVI-26,470 |

METHOD OF PAYMENT (check all that apply)
 Check Credit card Money Order Other None
 Deposit Account:

Deposit Account Number
20-0780/PAVI-26,470

Deposit Account Name
HOWISON & ARNOTT, L.L.P.

The Director is authorized to: (check all that apply)

- Charge fee(s) indicated below Credit any overpayments
- Charge any additional fee(s) or any underpayment of fee(s)
- Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.

FEE CALCULATION**1. BASIC FILING FEE**

| Large Entity | Small Entity | Fee Description | Fee Paid |
|--------------------------|---------------|------------------------|----------|
| Fee Code (\$) | Fee Code (\$) | | |
| 1001 790 | 2001 395 | Utility filing fee | |
| 1002 350 | 2002 175 | Design filing fee | |
| 1003 550 | 2003 275 | Plant filing fee | |
| 1004 790 | 2004 395 | Reissue filing fee | |
| 1005 160 | 2005 80 | Provisional filing fee | |
| SUBTOTAL (1) (\$) | | | |

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

| Total Claims | Independent Claims | Multiple Dependent | Extra Claims | Fee from below | Fee Paid |
|--------------|--------------------|--------------------|--------------|----------------|----------|
| | | | -20** = | X | = |
| | | | - 3** = | X | = |
| | | | | | |

| Large Entity | Small Entity | Fee Description |
|--------------------------|---------------|--|
| Fee Code (\$) | Fee Code (\$) | |
| 1202 18 | 2202 9 | Claims in excess of 20 |
| 1201 88 | 2201 44 | Independent claims in excess of 3 |
| 1203 300 | 2203 150 | Multiple dependent claim, if not paid |
| 1204 88 | 2204 44 | ** Reissue independent claims over original patent |
| 1205 18 | 2205 9 | ** Reissue claims in excess of 20 and over original patent |
| SUBTOTAL (2) (\$) | | |

*or number previously paid, if greater; For Reissues, see above

3. ADDITIONAL FEES

Large Entity Small Entity

| Fee Code (\$) | Fee Code (\$) | Fee Description | Fee Paid |
|---------------|---------------|--|----------|
| 1051 130 | 2051 65 | Surcharge - late filing fee or oath | |
| 1052 50 | 2052 25 | Surcharge - late provisional filing fee or cover sheet | |
| 1053 130 | 1053 130 | Non-English specification | |
| 1812 2,520 | 1812 2,520 | For filing a request for ex parte reexamination | |
| 1804 920* | 1804 920* | Requesting publication of SIR prior to Examiner action | |
| 1805 1,840* | 1805 1,840* | Requesting publication of SIR after Examiner action | |
| 1251 110 | 2251 55 | Extension for reply within first month | |
| 1252 430 | 2252 215 | Extension for reply within second month | |
| 1253 980 | 2253 490 | Extension for reply within third month | |
| 1254 1,530 | 2254 765 | Extension for reply within fourth month | |
| 1255 2,080 | 2255 1,040 | Extension for reply within fifth month | |
| 1401 340 | 2401 170 | Notice of Appeal | |
| 1402 340 | 2402 170 | Filing a brief in support of an appeal | |
| 1403 300 | 2403 150 | Request for oral hearing | |
| 1451 1,510 | 1451 1,510 | Petition to institute a public use proceeding | |
| 1452 110 | 2452 55 | Petition to revive - unavoidable | |
| 1453 1,370 | 2453 685 | Petition to revive - unintentional | |
| 1501 1,370 | 2501 685 | Utility issue fee (or reissue) | |
| 1502 490 | 2502 245 | Design issue fee | |
| 1503 660 | 2503 330 | Plant issue fee | |
| 1460 130 | 1460 130 | Petitions to the Commissioner | |
| 1807 50 | 1807 50 | Processing fee under 37 CFR 1.17(q) | |
| 1806 180 | 1806 180 | Submission of Information Disclosure Stmt | 180.00 |
| 8021 40 | 8021 40 | Recording each patent assignment per property (times number of properties) | |
| 1809 790 | 2809 395 | Filing a submission after final rejection (37 CFR 1.129(a)) | |
| 1810 790 | 2810 395 | For each additional invention to be examined (37 CFR 1.129(b)) | |
| 1801 790 | 2801 395 | Request for Continued Examination (RCE) | |
| 1802 900 | 1802 900 | Request for expedited examination of a design application | |

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$) 180.00

(Complete if applicable)

SUBMITTED BY

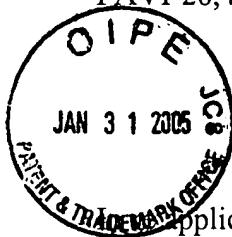
| | | | | | |
|-------------------|--------------------|-----------------------------------|--------|-----------|--------------|
| Name (Print/Type) | Gregory M. Howison | Registration No. (Attorney/Agent) | 30,646 | Telephone | 972-680-6050 |
| Signature | | | | Date | 1/28/05 |

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PAVI-26,470



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

application of: James D. Keeler, Eric J. Hartman and Ralph B. Ferguson

Serial No.: 10/614,335

Filed: July 7, 2003

Group: 2121

Examiner: George B. Davis

For: METHOD AND APPARATUS FOR OPERATING A NEURAL NETWORK WITH MISSING AND/OR INCOMPLETE DATA

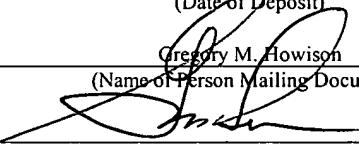
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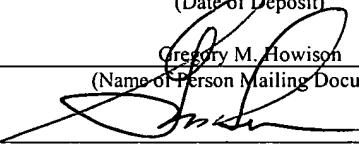
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Gregory M. Howison

(Name of Person Mailing Document)


(Signature)

11/28/05

(Date of Signature)

02/03/2005 WASFAW1 00000019 10614335

01 FC:1806

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INFORMATION DISCLOSURE STATEMENT

In accordance with the requirements of 37 C.F.R. §§ 1.56, 1.97, and 1.98, attached please find a Form PTO SB/08 listing information for consideration by the Office in connection with its examination of the above-captioned patent application. A copy of each listed non-US document is enclosed herewith.

This information disclosure statement is being filed after the period specified in paragraph (b) of §1.97, but before the mailing date of either a final action under §1.113, or a notice of allowance under §1.311. Therefore, pursuant to §1.97(c)(2), this information disclosure statement is accompanied by the fee set forth in §1.17(p).

It is brought to Examiner's attention that the references listed on the attached Form PTO SB/08 were previously submitted to the Office in connection with a prior application, namely Application Serial No. 10/040,085, which is relied upon in the current application for an earlier filing date under 35 U.S.C. §120. Pursuant to 37 C.F.R. 1.98(d), copies of such previously submitted items are not provided herein.

Applicants request that this information disclosure statement be considered and that a copy of the Form PTO SB/08 be returned to the undersigned indicating the consideration of each document listed.

REMARKS

Applicants submit that no representation is made, and no representation is intended, that more relevant material does not exist, or that the order of presentation of these materials in any way reflects their relevant pertinence. The listing on the attached Form PTO SB/08 is not intended to constitute an admission of any kind. Specifically, this presentation is not an admission that any of the items listed are properly citable against the above-identified application as prior art. Applicants respectfully submit that their invention is patentable over the enclosed documents listed on Form PTO SB/08.

Please charge any necessary fees or deficiencies in fees necessary for the filing of this paper or credit any overpayment to Deposit Account No. 20-0780/PAVI-26,470 of HOWISON & ARNOTT, L.L.P.

Respectfully submitted,

HOWISON & ARNOTT, L.L.P.
Attorneys for Applicants

Gregory M. Howison
Registration No. 30,646

GMH/yoc

P.O. Box 741715
Dallas, Texas 75374-1715
Tel. (972) 479-0462
Fax. (972) 479-0464
January 28, 2005

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JAN 31 2005
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PTO/SB/08A (08-00)

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Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet

1

of 4

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| | |
|----------------------|-----------------|
| Application Number | 10/614,335 |
| Filing Date | July 7, 2003 |
| First Named Inventor | Keeler et al. |
| Group Art Unit | 2121 |
| Examiner Name | George B. Davis |

Attorney Docket Number

PAVI-26,470

U.S. PATENT DOCUMENTS

| Examiner Initials* | Cite No. ¹ | U.S. Patent Document | | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
|--------------------|-----------------------|----------------------|-----------------------------------|---|--|---|
| | | Number | Kind Code ² (if known) | | | |
| 1 | 4,802,103 | | | Faggin et al. | 01/1989 | |
| 2 | 4,813,077 | | | Woods et al. | 03/1989 | |
| 3 | 4,872,122 | | | Altschuler et al. | 01/1989 | |
| 4 | 4,910,691 | | | Skeirik | 03/1990 | |
| 5 | 4,965,742 | | | Skeirik | 10/1990 | |
| 6 | 5,006,992 | | | Skeirik | 04/1991 | |
| 7 | 5,052,043 | | | Gaborski | 09/1991 | |
| 8 | 5,081,651 | | | Kubo | 01/1992 | |
| 9 | 5,111,531 | | | Grayson et al. | 05/1992 | |
| 10 | 5,113,483 | | | Keeler et al. | 05/1992 | |
| 11 | 5,121,467 | | | Skeirik | 06/1992 | |
| 12 | 5,140,523 | | | Frankel et al. | 08/1992 | |
| 13 | 5,150,313 | | | van den Engh et al. | 09/1992 | |
| 14 | 5,175,797 | | | Funabashi et al. | 12/1992 | |
| 15 | 5,255,347 | | | Matsuba et al. | 10/1993 | |
| 16 | 5,276,771 | | | Manukian et al. | 01/1994 | |
| 17 | 5,335,291 | | | Kramer et al. | 08/1994 | |
| 18 | 5,353,207 | | | Keeler et al. | 10/1994 | |
| 19 | 5,402,519 | | | Inoue et al. | 03/1995 | |
| 20 | 5,444,820 | | | Tzes et al. | 08/1995 | |

FOREIGN PATENT DOCUMENTS

| Examiner Initials* | Cite No. ¹ | Foreign Patent Document | | | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | T ⁶ |
|--------------------|-----------------------|-------------------------|---------------------|-----------------------------------|---|--|---|----------------|
| | | Office ³ | Number ⁴ | Kind Code ⁵ (if known) | | | | |
| 1 | EP | 0262647 | | A3 | Toshiba | 04-06-1988 | | |
| 2 | EP | 0327268 | | A2 | AT&T | 08-09-1989 | | |
| 3 | EP | 0436916 | | A2 | Motorola Inc. | 07-17-1991 | | |
| | | | | | | | | |
| 4 | WO | 94/17489 | | | Pavilion Technologies, Inc. | 08-04-1994 | | |
| 5 | WO | 94/12948 | | | Pavilion Technologies, Inc. | 06-09-1994 | | |
| 6 | WO | 94/17482 | | | Pavilion Technologies, Inc. | 08-04-1994 | | |
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Examiner Signature

Date Considered

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¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

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| Substitute for form 1449A/PTO | | Complete if Known | |
| INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i> | | Application Number | 10/614,335 |
| | | Filing Date | July 7, 2003 |
| | | First Named Inventor | Keeler et al. |
| | | Group Art Unit | 2121 |
| | | Examiner Name | George B. Davis |
| Sheet | 2 | of 4 | Attorney Docket Number |
| | | | PAVI-26,470 |

U.S. PATENT DOCUMENTS

FOREIGN PATENT DOCUMENTS

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|-----------------------|--|--------------------|--|
| Examiner Signature | | Date Considered | |
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| | | Filing Date | July 7, 2003 |
| | | First Named Inventor | Keeler et al. |
| | | Group Art Unit | 2121 |
| | | Examiner Name | George B. Davis |
| Sheet | 3 | of | 4 |
| | | Attorney Docket Number | PAVI-26,470 |

| OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS | | | | |
|---|-----------------------|---|--|----------------|
| Examiner Initials* | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | | T ² |
| | 1 | PHOHA, SHASHI; "Using the National Information Infrastructure (NII) for Monitoring, Diagnostics and Prognostics of Operating Machinery," IEEE Proceedings of the 35th Conference on Decision and Control, Kobe, Japan, pp. 2583-2587, Dec. 1996. | | |
| | 2 | HARTMAN, ERIC J., KEELER JAMES D., KOWALSKI, JACEK M.; "Layered Neural Networks with Gaussian Hidden Units as Universal Approximations," Neural Computation 2, 1990, Massachusetts Institute of Technology, pp. 210-215. | | |
| | 3 | HARTMAN, ERIC, KEELER, JAMES D.; "Predicting the Future: Advantages of Semilocal Units," Neural Computation 3, 1991, Massachusetts Institute of Technology, pp. 566-578. | | |
| | 4 | PRESS, WILLIAM H., FLANNERY, BRIAN P., TEUKOLSKY, SAUL A., VETTERLING, WILLIAM T.; Numerical Recipes: The Art of Scientific Computing, 1986, ch. 3, "Interpolation and Extrapolation," pp. 77-101. | | |
| | 5 | SERTH, R.W., HEENAN, W. A.; "Gross Error Detection and Data Reconciliation in Steam-Metering Systems," AIChE Journal, vol. 32, No. 5, May 1986, pp. 733-742. | | |
| | 6 | MYUNG-SUB ROH et al.; Thermal Power Prediction of Nuclear Power Plant Using Neural Network and Parity Space Model, IEEE Transactions on Nuclear Science, vol. 38, no. 2, Apr. 1991, pp. 866-72. | | |
| | 7 | AUTERE, ANTTI; On Correcting Systematic Errors Without Analyzing Them by Performing a Repetitive Task, IEEE / RSI International Workshop on Intelligent Robots and Systems IROS '91, Nov. 3-5, 1991, pp. 472-7. | | |
| | 8 | KIMOTO, TAKASHI et al.; Stock Market Prediction System with Modular Neural Networks, IEEE, Jun. 1990, pp. I-1 to I-6. | | |
| | 9 | DORRONSORO ET AL.; "Neural Fraud Detection in Credit Card Operations," IEEE Transactions on Neural Networks, VOL. 8, NO. 4, Jul. 1997, PP. 827-34. | | |
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|--------------------|-----------------|
| Examiner Signature | Date Considered |
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| INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(use as many sheets as necessary)</i> | | Application Number | 10/614,335 |
| Sheet | 4 | Filing Date | July 7, 2003 |
| | | First Named Inventor | Keeler et al. |
| | | Group Art Unit | 2121 |
| | | Examiner Name | George B. Davis |
| | | Attorney Docket Number | PAVI-26,470 |

| OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS | | |
|--|-----------|---|
| Examiner Initials' | Cite No.1 | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. |
| | 10 | SPENCELEY, S.E., WARREN, J.R.; "The Intelligent Interface for Online Electronic Medical Records Using Temporal Data Mining," IEEE Xplore, Proceedings of the 31st Annual Hawaii, International Conference on System Sciences. Jan. 1998, pp. 266-745. |
| | 11 | KOUTSOUGERAS; "A feedforward neural network classifier model: multiple classes, confidence output values, and implementation," International Journal of Pattern Recognition and Artificial Intelligence Ed. World Scientific Publishing Co., October 1992, vol. 6, no. 4, pp. 539-569. |
| | 12 | LAPEDES, ALAN, FARBER, ROBERT; "How Neural Nets Work," American Inst. of Physics, 1988, pp. 442-457. |
| | 13 | WEIGEND, ANDREAS S., HUBERMAN, BERNARDO A., RUMELHART, DAVID E; "Predicting the Future: A Connectionist Approach," Stanford University, Stanford-PDP-90-01/PARC-SSL-90-20, Apr. 1990. |
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